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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,581	12/18/2001	Masahiro Baba	21702US2RD	6132

22850 7590 12/07/2004

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EXAMINER

LIANG, REGINA

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/017,581	<b>Applicant(s)</b> BABA ET AL.	
	<b>Examiner</b> Regina Liang	<b>Art Unit</b> 2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,9-16 and 18-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 9 is/are allowed.
- 6) ☒ Claim(s) 1,3-7,10-16,18,19,23 and 24 is/are rejected.
- 7) ☐ Claim(s) 20-22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Claim Rejections - 35 USC § 103***

2. Claims 1, 3-7, 10-15, 23, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (EP 0 700 215 hereinafter Takahashi) in view of Sugiura et al (US. PAT. NO. 6,621,497 hereinafter Sugiura).

As to claim 1, Fig. 1 of Takahashi discloses a field-sequential color display comprising time-sequentially displaying of luminous information of an input image information with every display color, changing the display color in synchronism with the displaying of the luminous information in order to display the input image information (see Fig. 3), wherein one frame period in which one color image is displayed comprised at least four sub-field periods in which information of each color is displayed (see last three lines in the abstract), and a picture signal displayed in at least one sub-field period is a non-three-primary color picture signal (W signal) which is generated based on the color picture signals of the input image information (R, G, B). Takahashi does not disclose the non-three primary color picture signal comprising a color determined on the basis of the color picture signals of the input image information, therein the color not being fixed to one color. However, Sugiura teaches a color conversion device comprising R, G and B input signals, Y, M, and C non-three-primary color picture signals are generated on the basis of the R, G and G input signals. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display of Takahashi

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to have the non-three-primary color picture signals including any one of W, C, M and Y which are generated from the primary color picture signals so as to obtain six hue data and a good conversion can be achieved without being influenced by the non-linearity of the input image data and no large-capacity memories are necessary.

As to claims 4, 5, Figs. 2A and 2B of Takahashi teaches the W signal displayed in the sub-field period is determined on the basis of the input video signal (col. 4, lines 18-26).

As to claim 6, Fig. 8 of Takahashi shows the W signal displayed in the sub-field period is determined with every scene change of the input video signal.

As to claim 7, Fig. 1 of Takahashi teaches the picture signal displayed in each of the sub-field periods is one of modified picture signals (R', B', or G') which are obtained by separating the input picture signal into the n non-three-primary color picture signals (W signal, n is 1) and three modified three-primary color picture signals (R', B', or G').

As to claim 10, see Fig. 3 of Takahashi

As to claim 11, note the discussion of claim 1 above, the display device of Takahashi as modified by Sugiura determining variably non-three-primary color (any one of W, C, M and Y). Takahashi also teaches the display unit comprising a monochrome display (11).

As to claims 3 and 12, Takahashi teaches the non-three-primary color picture signal is a W signal. Sugiura teaches the non-three-primary color picture signals comprising C, M and Y.

As to claim 13, Takahashi teaches the display unit having a signal separating circuit separating the R, G and B signals from the input picture signal as claimed (col. 4, lines 20-30).

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As to claims 14 and 15, Figs. 1 and 6 of Takahashi teaches the monochrome image display (11) is a self-emission type display unit, and the color display is a LC color shutter comprising LC cells (16, 18) and polarizers (15, 17, 19).

As to claims 23, 24, Sugiura teaches the Y, M and C are determined on the basis of a color breakup prediction model which is determined on the basis of each luminance value of the R, G and B signals (col. 13, lines 59 to col. 14, line 25).

3. Claims 16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Sugiura as applied to claims 11 above, and further in view of Someya et al (US. PAT. NO. 6,392,656 hereafter Someya) and Stanton (US. PAT. NO. 5,428,408).

As to claim 16, Takahashi as modified by Sugiura does not disclose the field-sequential color display unit is a projection type display unit having an optical lens for enlarging a field-sequentially displayed color image to project the image on a screen. However, Someya suggests "field sequential color is used in, for example, projection television system, data projectors, head-mounted displays monitors, and viewfinders, where it enables high-resolution color images to be displayed with comparatively few monochromatic picture elements" (col. 1, lines 9-10). Stanton teaches a projection type display unit having an optical lens for enlarging a displayed color image to project the image on a screen. Thus, in view of Someya's suggestion, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the field-sequential color display unit of Takahashi as modified by Sugiura to be a projection type display unit and further having an optical lens as taught by Stanton so as to provide a large field-

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sequentially color image on a projection screen and to reduce color breakup in a field-sequential color image display.

As to claim 18, Someya teaches the color display unit is a head mounted display (col. 1, lines 9-10).

4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Sugiura as applied to claims 11 above, and further in view of Zhang et al (US. PAT. NO. 5,461,397).

Takahashi as modified by Sugiura does not disclose the image display is a transmissive type liquid crystal light valve and the color display is a backlight provided on the backside of the LC light valve. However, Figs. 1 and 2 of Zhang teaches a display device having a LC light valve (34) and a color backlight (32) provided on the back side of the LC light valve, the backlight having a plurality of light sources capable of time-sequentially selecting the RGB colors to emit light (col. 8, lines 3-28 for example). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display of Takahashi as modified by Sugiura to be a transmissive type-light crystal light valve and having a backlighting as taught by Zhang so as to reduce the crosstalk between subsequent color fields in a multicolor or full color display (see col. 5, lines 31-36 of Zhang).

***Allowable Subject Matter***

5. Claim 9 is allowed.

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6. Claims 20-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

7. Applicant's arguments with respect to claims 1, 3-7, 10-19 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (703) 305-4719. The examiner can normally be reached on Monday-Friday from 9AM to 5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

  
REGINA LIANG  
PRIMARY EXAMINER  
ART UNIT 2674

RL  
12/2/04